

- C²
- (e) a sequence comprising at least 100 consecutive nucleotides from a nucleic acid sequence of (b).
-

8. (Amended) An immunogenic composition comprising a vaccine vector and at least one nucleic acid selected from any one of:

- C³
- (i) SEQ ID No: 1;
 - (ii) a nucleic acid sequence comprising at least 38 consecutive nucleotides from SEQ ID No:1;
 - (iii) a nucleic acid sequence which encodes a polypeptide which is at least 75% identical in amino acid sequence to SEQ ID No:14;
 - (iv) a nucleic acid sequence which encodes a polypeptide whose sequence is set forth in SEQ ID No: 14; and
 - (v) a nucleic acid sequence which encodes an immunogenic fragment comprising at least 12 consecutive amino acids from SEQ ID No: 14;

wherein the at least one nucleic acid is capable of being expressed.

9. (Amended) An immunogenic composition comprising a vaccine vector and at least one nucleic acid encoding a fusion protein, wherein the fusion protein comprises:

- (a) a first polypeptide selected from any one of:
 - (i) a polypeptide which is at least 75% identical in amino acid sequence to SEQ ID No:14;
 - (ii) a polypeptide whose sequence is set forth in SEQ ID No: 14; and
 - (iii) an immunogenic fragment comprising at least 12 consecutive amino acids from SEQ ID No: 14;

and,

- (b) a second polypeptide;

wherein the at least one nucleic acid is capable of being expressed.

C⁴

10. (Amended) The immunogenic composition of claim 9 wherein the second polypeptide is a heterologous signal peptide.

11. (Amended) The immunogenic composition of claim 9 wherein the second polypeptide has adjuvant activity.

12. (Amended) The immunogenic composition of claim 8 wherein each of the at least one nucleic acid is operatively linked to one or more expression control sequences.

C4 13. (Amended) The immunogenic composition of claim 8 wherein each nucleic acid is expressed as a polypeptide, and wherein the immunogenic composition further comprises an additional nucleic acid encoding an additional polypeptide which enhances the immune response to the polypeptide expressed by the nucleic acid defined in claim 8.

14. (Amended) The immunogenic composition of claim 13 wherein the additional polypeptide is a *Chlamydia* polypeptide.

C5 16. (Amended) A pharmaceutical composition comprising a the immunogenic composition according to claim 8 and a pharmaceutically acceptable carrier.

C6 18. (Amended) An isolated and purified probe of 5 to 100 nucleotides which hybridizes under stringent conditions to SEQ ID No: 1, or to a complementary sequence of SEQ ID No:1.

19. (Amended) An isolated and purified primer of 10 to 40 nucleotides which hybridizes under stringent conditions to SEQ ID No: 1, or to a complementary sequence of SEQ ID No:1.

36. (Amended) A method for preventing or treating *Chlamydia* infection comprising administering to a patient an effective amount of:

- C7
- (a) the nucleic acid according to claim 2;
 - (b) an immunogenic composition comprising a vaccine vector and at least one nucleic acid according to claim 2;

(c) a pharmaceutical composition comprising the nucleic acid according to claim 2 and a pharmaceutically acceptable carrier;

(d) a polypeptide encoded by a nucleic acid sequence selected from any one of:

- 79
- (i) SEQ ID No: 1;
 - (ii) a sequence which encodes a polypeptide as set forth in SEQ ID No:14;
 - (iii) at least 38 consecutive nucleotides from SEQ ID No: 1;
 - (iv) a sequence which encodes a polypeptide which is at least 75% identical in amino acid sequence to SEQ ID No:14; and
 - (v) a sequence comprising at least 100 consecutive nucleotides from a nucleic acid sequence of (ii);

or,

(e) an antibody against the polypeptide defined in (d).

In accordance with 37 C.F.R. 1.121, please add new claims 40 and 41, as follows:

79.
~~40.~~ (New) The isolated and purified nucleic acid molecule of claim 2, comprising a nucleic acid sequence selected from any one of:

- Rule 126
- CB
- (a) SEQ ID No: 1;
 - (b) a sequence which encodes a polypeptide as set forth in SEQ ID No:14;
 - (c) at least 38 consecutive nucleotides from SEQ ID No: 1; and
 - (d) a sequence comprising at least 100 consecutive nucleotides from a nucleic acid sequence of (b).

80.
41. (New) The immunogenic composition of claim 8 comprising a vaccine vector and at least one nucleic acid selected from any one of:

- (i) SEQ ID No: 1;
- (ii) a nucleic acid sequence comprising at least 38 consecutive nucleotides from SEQ ID No:1;
- (iii) a nucleic acid sequence which encodes a polypeptide whose sequence is set forth in SEQ ID No: 14; and

(iv) a nucleic acid sequence which encodes an immunogenic fragment comprising at least 12 consecutive amino acids from SEQ ID No: 14; wherein the at least one nucleic acid is capable of being expressed.

In the Figures:

Proposed new Figures 1-13 are submitted herewith. A marked up version of Figures 1-13 is submitted, with the changes marked in red.